

WHAT IS CLAIMED IS:

1. A variable optical delay line comprising:

a plurality of optical fiber paths, each path comprising at least one reflective element and a first region different in curvature from the other paths in the plurality to provide respectively

5 different optical delay paths; and

a optical switch for switching at least one optical input signal among the fibers of the plurality.

2. The delay line of claim 1 wherein the optical switch comprises a MEMs mirror optical switch.

10 3. The delay line of claim 1 wherein the at least one reflective element comprises a reflective Bragg grating.

4. The delay line of claim 1 wherein the reflective element is switchable between reflection and transmission.

15 5. The delay line of claim 1 wherein each path comprises a second region where the path is parallel to the other paths in the plurality.

6. The delay line of claim 5 wherein a reflective element in each path comprises a Bragg grating formed in the second region.

7. The delay line of claim 1 wherein each path comprises a plurality of refractive elements switchable between reflection and transmission.

20 8. The delay line of claim 1 wherein the plurality of optical fiber paths comprise a plurality of optical fibers secured to a substrate of sheet material.

9. The delay line of claim 1 wherein the at least one optical input signal is one optical input signal and the optical switch comprises a 1XN MEMs mirror optical switch.

10. The delay line of claim 1 wherein the at least one optical input signal comprises a plurality of optical input signals and the optical switch comprises on NXN MEMs mirror optical switch.
11. The delay line of claim 1 wherein the at least one optical input signal comprises a plurality of optical input signals having respectively different wavelengths.